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E-ISSN 2722-4708 | P-ISSN 2302-3783
Vol.11, No.2, December, 2023, pp. 384-405

The Influence of Green Tax Regulations on New Renewable Energy Funding in Indonesia

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ARTICLE INFO

Article history
Received: July 10, 2023
Revised: December 25, 2023
Accepted: December 30, 2023

Keywords
Energy;
Green Tax;
Regulations;

ABSTRACT

Reen taxes, such as carbon taxes, can help countries invest in the latest technologies and achieve sustainable prosperity by funding renewable energy. However, we see that the current tax system still needs to be improved. This research aims to analyze the Influence of Green Tax Regulations on New Renewable Energy Funding in Indonesia. This research employs a normative legal approach informed by a literature review. The research results show that the various regulations regarding green tax regulations impact the non-maximization of new renewable energy funding. Taxes can generate government revenue by trading carbon credits to reduce greenhouse gas emissions. Additional funds can be used to fund initiatives in alternative settings. Green taxes, such as carbon taxes, can help countries invest in emerging technologies and achieve sustainable prosperity by providing funding for renewable energy.
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1. Introduction

Increasing levels of greenhouse gases (GHGs) in the atmosphere, primarily caused by human activities such as deforestation and the combustion of fossil fuels[1], have elevated global warming and climate change to pressing concerns in the twenty-first century.[2] CO2 is the greenhouse gas that is most widely present in the Earth's atmosphere.[3] According to

[1] Asif Raihan, Rawshan Ara Begum, and Mohd Nizam Mohd Said, 'A Meta-Analysis of the Economic Value of Forest Carbon Stock', *Malaysian Journal of Society and Space*, 17.4 (2021) https://doi.org/10.17576/geo-2021-1704-22
[2] Shoaibur Rahman, Abdirizak Ali, and Asif Raihan, 'Soil Carbon Sequestration in Agroforestry Systems as a Mitigation Strategy of Climate Change: A Case Study from Dinajpur, Bangladesh', *Advances in Environmental and Engineering Research*, 03.04 (2022), 1–13 https://doi.org/10.21926/aeer.2204056
[3] Syed Tauseef Hassan, Bushra Batool, and others, 'How Do Green Energy Investment, Economic Policy Uncertainty, and Natural Resources Affect Greenhouse Gas Emissions? A Markov-Switching Equilibrium

projections, the ongoing escalation of carbon dioxide (CO2) emissions will negatively impact the global climate system, leading to severe repercussions for the environment and human health.[4] Reduction of carbon dioxide emissions and improvement of environmental quality are two of the most critical challenges the world faces at present.[5] In particular, the consequences of ocean acidification and global warming resulting from excessive CE present a grave peril to food security, ecological well-being, and sustainable development.

The increasing concerns regarding energy scarcity, climate change, and the viability of environmentally sustainable practices have underscored the importance of renewable energy sources.[6] The global economy is progressively compelled to embrace renewable energy sources due to the continuous depletion of fossil fuels and the detrimental environmental impacts associated with their utilization[7]. This is occurring even though fossil fuels have existed for millions of years. The implementation of renewable energy sources has the potential to sustain economic output at current levels while simultaneously mitigating global energy consumption.[8] Presently, advancing the sustainable growth of the global economy and combating climate change require innovations in renewable energy technology.[9] Furthermore, energy poverty reduction is substantially impacted by the advancement of renewable energy technologies.[10] Renewable energy sources must be utilized to achieve the 2050 global emission reduction target of fifty percent.[11] Conversely, Indonesia possesses abundant renewable energy resources, and the country has established and enforced legal frameworks to encourage the utilization of these assets. However, limited research has been conducted on the potential of renewable energy sources to mitigate carbon dioxide (CO2) emissions in Indonesia.

Approach', *Environmental Impact Assessment Review*, 97 (2022), 106887 https://doi.org/10.1016/j.eiar.2022.106887

[4] Syed Tauseef Hassan, Danish Khan, and others, 'Is Public Service Transportation Increase Environmental Contamination in China? The Role of Nuclear Energy Consumption and Technological Change', *Energy*, 238 (2022), 121890 https://doi.org/10.1016/j.energy.2021.121890

[5] Md Mahfuzul Islam and others, 'A Bibliometric Analysis on the Research Trends of Climate Change Effects on Economic Vulnerability', *Environmental Science and Pollution Research*, 29.39 (2022), 59300–315 https://doi.org/10.1007/s11356-022-20028-0

[6] Asif Raihan and Almagul Tuspekova, 'Role of Economic Growth, Renewable Energy, and Technological Innovation to Achieve Environmental Sustainability in Kazakhstan', *Current Research in Environmental Sustainability*, 4 (2022), 100165 https://doi.org/10.1016/j.crsust.2022.100165

[7] Asif Raihan and others, 'Dynamic Impacts of Energy Use, Agricultural Land Expansion, and Deforestation on CO2 Emissions in Malaysia', *Environmental and Ecological Statistics*, 29.3 (2022), 477–507 https://doi.org/10.1007/s10651-022-00532-9

[8] Asif Raihan and Almagul Tuspekova, 'Nexus between Economic Growth, Energy Use, Agricultural Productivity, and Carbon Dioxide Emissions: New Evidence from Nepal', *Energy Nexus*, 7 (2022), 100113 https://doi.org/10.1016/j.nexus.2022.100113

[9] Chien-Chiang Lee, Zhi-Wen He, and Fu Xiao, 'How Does Information and Communication Technology Affect Renewable Energy Technology Innovation? International Evidence', *Renewable Energy*, 200 (2022), 546–57 https://doi.org/10.1016/j.renene.2022.10.015

[10] Chien-Chiang Lee and others, 'The Impact of Renewable Energy Technology Innovation on Energy Poverty: Does Climate Risk Matter?', *Energy Economics*, 116 (2022), 106427 https://doi.org/10.1016/j.eneco.2022.106427

[11] Asif Raihan and Almagul Tuspekova, 'Dynamic Impacts of Economic Growth, Energy Use, Urbanization, Tourism, Agricultural Value-Added, and Forested Area on Carbon Dioxide Emissions in Brazil', *Journal of Environmental Studies and Sciences*, 12.4 (2022), 794–814 https://doi.org/10.1007/s13412-022-00782-w

While CO2 emission reduction may generate controversy, numerous approaches to addressing ecological challenges by implementing and experimenting with innovative solutions exist. Decades have passed with a greater emphasis on green innovations and strategies to combat environmental threats. The growing preference for renewable energy over conventional fossil fuels is due to its significantly reduced carbon imprint. Improving energy mix composition with renewable energy sources is crucial to transitioning to a low-carbon economy. Without incentivizing formal environmental regulations, such as taxation, polluters might not prioritize the transition to renewable energy due to the substantial financial investment required, its technical challenges, and the lengthy return periods.[12]

Implementing renewable energy sources presents numerous obstacles, one of which pertains to financial resources. As a result of prevailing circumstances, global energy costs fluctuate and are generally low. For instance, the price of Biodiesel's lack of competitiveness discourages manufacturers from producing it. Therefore, several measures must be taken to increase investment, such as providing producers with incentives and enhancing regulations to facilitate long-term investment growth. This is particularly important in pursuing Indonesia's energy blend in 2025.[13] Given Indonesia's objective to reduce carbon emissions, implementing a carbon tax to generate revenue to combat climate change appears to be the most suitable course of action. Additionally, public confidence in the Council is minimal. The numerous advantages and disadvantages of implementing a carbon tax, as well as the views of members of the legislature, reinforce the argument that all revenue must be allocated to renewable energy and environmental development to achieve policy acceptability. Moreover, Indonesia's New Renewable Energy (EBT) target of 23% by 2025 can be realized exclusively via carbon tax financing, obviating the need to rely on foreign investment. The growing environmental catastrophe requires action to promote sustainability. Effective methods include green taxation. This article explains green taxation as a policy to promote environmental sustainability. Green taxes benefit the environment and economy by encouraging green behavior and sustainable investments. Carbon taxes, air pollution taxes, and natural resource utilization taxes are a few of the ecologically friendly levies that may be imposed. To promote environmentally responsible conduct, each variety of green tax has distinct objectives and methods. Green taxation reduces greenhouse gas emissions, promotes sustainable industrial development, improves energy efficiency, and reduces pollution. Economically, green taxation may give the government more revenue.

Table 1. Percentage of Funding Needs for Handling Climate Change by Sector

Sector	Percentage of Funding Needs
Forest and Land Use	7,71%
Energy and Transportation	87,47%

[12] Yongfeng Zhu, David Taylor, and Zilong Wang, 'The Role of Environmental Taxes on Carbon Emissions in Countries Aiming for Net-Zero Carbon Emissions: Does Renewable Energy Consumption Matter?', *Renewable Energy*, 218 (2023), 119239 https://doi.org/10.1016/j.renene.2023.119239

[13] Yordan Gunawan and Mohammad Hazyar, 'The Climate Change Litigation Based Human Rights Approach in Corporations : Prospects and Challenges', *Journal of Human Rights, Culture and Legal System*, 3.2 (2023), 288–307 https://doi.org/https://doi.org/10.53955/jhcls.v3i2.116

Agriculture	0,18%
IPPU	0,02%
Waste	4,63%

Source: Ministry of Environment and Forestry, 2021

Indeed, in the Indonesia Thirty Biennial Update Report report, the Ministry of Environment and Forestry, in collaboration with the United Nations Framework Convention on Climate Change (UNFCCC), has published a framework outlining the necessary funding to reduce emissions by 2030. The report utilizes five sectors as reference points: energy and transportation, agriculture, IPPU, waste, and forest and land use. The corresponding percentages are presented in the table above. This report serves as a point of reference when allocating carbon tax revenues. When arranged in order of importance, the energy and transportation sectors emerge as the most critical due to their funding demands exceeding 87%. Thus, the fact that 95% of carbon emissions in Indonesia originate from the energy and transportation sectors explains this.

Table 2. Indication of Budget Needs for the 2020-2024 Climate Change Program (billion rupiah)

Program	2020	2021	2022	2023	2024
Climate change mitigation	11	14,4	15,9	10	11,5
Climate Change Adaptation	3,2	14	6	18	18
GHG Inventory and Monitoring Reporting and verification	4,25	1	16	17	17
Resource Mobilization for Climate Change	5	6,25	7,5	8,75	10
Forest and Land Fire Control	182	218	254	290	326
Total	206,3	262,6	309,4	343,7	382,5

Source: Ministry of Environment and Forestry

According to data from the Ministry's Directorate General of Climate Change Control (DJPPI). According to the table above, Environment and Forestry (KLHK) consistently requires over IDR 200 billion in climate change funding annually. Indeed, upon examining the annual trajectory, it becomes evident that the demand for financial resources is escalating, culminating in an allocation of IDR 382.5 billion in 2023. This would indicate that funding will not be necessary in the future to address climate change; however, it does not rule out the prospect that the price will continue to rise, so the government must seek out alternative funding sources.[14]

Indonesia is actively mitigating the global carbon crisis by implementing a carbon tax stipulated in the HPP Law. This provision additionally governs the utilization of carbon tax revenues, which implies that these receipts may be designated for climate change treatment; however, this is not mandatory.[15] As carbon emissions are the root cause of climate change and the budget and need for funds to combat climate change in Indonesia are insufficient, the government must allocate all carbon tax revenues.[16] Recalling the regulations as the publication of the carbon tax derivative is still pending, the government should reassess the distribution of carbon tax revenues, which ought to be entirely devoted

[14] Hudali Mukti and Bobur Baxtishodovich Sobirov, 'Environmental Justice at the Environmental Regulation in Indonesia and Uzbekistan', *Journal of Human Rights, Culture and Legal System*, 3.3 (2023), 489. https://doi.org/10.53955/jhcls.v3i3.171

[15] Indriati Amarini and others, 'Digital Transformation: Creating an Effective and Efficient Court in Indonesia', *Legality: Jurnal Ilmiah Hukum*, 31.2 (2023), 266–84 https://doi.org/10.22219/ljih.v31i2.28013

[16] Sudirman and others, 'Examining the Complexity of Child Marriage as Sexual Violence in the Digital Era', *Legality: Jurnal Ilmiah Hukum*, 31.2 (2023), 310–28 https://doi.org/10.22219/ljih.v31i2.28881

to reducing carbon emissions in Indonesia.[17] By sustainable development, this overall allocation can expand opportunities for the green transition industry and enhance environmental maintenance.[18]

The establishment and efficient execution of environmental regulations to promote the shift towards a low-carbon economy represents a significant mechanism wherein governments can exert considerable influence. There are aspects of environmental regulations that are both formal and informal.[19] Relaxed ecological regulations are commonly characterized by minimal administrative burdens, which allow offenders to establish suitable procedures for complying with standards for pollutant emissions. In contrast, formal environmental regulations, including taxation, have the potential to serve as potent instruments of governance.[20] The effectiveness of ecological levies in reducing CE has recently received considerable attention.[21] Potentially a significant tool for mitigating human-induced environmental impacts, such as contaminant emissions from agricultural, domestic, transportation, and industrial sources, ecological taxes can be instrumental Data. A government may attempt to transition to a low-carbon economy by imposing substantial environmental levies on highly polluting businesses, thereby giving existing and emerging less polluting entities a competitive edge.[22] v

The correlation between *green tax* and CE may demonstrate the threshold effect of renewable energy. More precisely, if renewable energy comprises a negligible fraction of an organization's energy portfolio, the transition away from fossil fuels may prove challenging, notwithstanding the imposition of higher *green tax* due to the prohibitive nature and, consequently, the high cost of harnessing alternative energy sources.[23] Conversely, regional enterprises may readily adopt renewable energy sources in response to stricter environmental regulations if the proportion of renewable energy in the energy mix is substantial. Put, a threshold effect may impact the extent to which ecological taxes

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[17] Anindita Kusumowijoyo, Anjani Marta, and Kimberly Natali, 'The Artificial Intelligence as a One-Stop Point for Dealing with Online Human Trafficking Scams in Indonesia', *Journal of Sustainable Development and Regulatory Issues*, 1.3 (2023), 189–211 https://doi.org/https://doi.org/10.53955/jsderi.v1i3.18

[18] Rodiyah Rodiyah, Siti Hafsyah Idris, and Robert Brian Smith, 'Mainstreaming Justice in the Establishment of Laws and Regulations Process: Comparing Case in Indonesia, Malaysia, and Australia', *Journal of Indonesian Legal Studies*, 8.1 (2023), 333–78 https://doi.org/10.15294/jils.v7i2.60096

[19] Syed Abdul Rehman Khan, Pablo Ponce, and Zhang Yu, 'Technological Innovation and Environmental Taxes toward a Carbon-Free Economy: An Empirical Study in the Context of COP-21', *Journal of Environmental Management*, 298 (2021), 113418 https://doi.org/10.1016/j.jenvman.2021.113418

[20] Ran Tao and others, 'The Dynamic Effect of Eco-Innovation and Environmental Taxes on Carbon Neutrality Target in Emerging Seven (E7) Economies', *Journal of Environmental Management*, 299 (2021), 113525 https://doi.org/10.1016/j.jenvman.2021.113525

[21] Xuemei Liu and others, 'How Ecological Policy Stringency Moderates the Influence of Industrial Innovation on Environmental Sustainability: The Role of Renewable Energy Transition in BRICST Countries', *Renewable Energy*, 207 (2023), 194–204 https://doi.org/10.1016/j.renene.2023.01.045

[22] Masyhar Ali, Murtadho Ali, and Zaharuddin Sani Ahmad Sabri Ahmad, 'The Driving Factors for Recidivism of Former Terrorism Convicts in Socio-Legal Perspective', *Journal of Indonesian Legal Studies*, 8.1 (2023), 379–404 https://doi.org/10.15294/jils.v8i1.69445

[23] Fengsheng Chien and others, 'A Step toward Reducing Air Pollution in Top Asian Economies: The Role of Green Energy, Eco-Innovation, and Environmental Taxes', *Journal of Environmental Management*, 297 (2021), 113420 https://doi.org/10.1016/j.jenvman.2021.113420

can change carbon emissions on the availability of renewable energy. As their successful implementation induces energy-intensive businesses to transition to less polluting fuels, *green tax* may be an effective mechanism for regulating CE to attain net-zero objectives.[24]

Green tax is not yet regulated in Indonesia. The carbon tax is just one green tax branch. Environmental tax encompasses any levies that try to protect the environment. Increasingly complicated environmental difficulties and challenges have led to new rules. For instance, Law Number 1 of 2022 controls the Surface Water Tax (PAP) and Ground Water Tax (PAT), while Law Number 7 of 2021 includes a carbon tax and incentives for non-electric motorized vehicles. Plastic pollution, a global concern, has generated discussions about imposing excise on plastic products under Law Number 39 of 2007. Diversity in regulations has implications. Regulation overlap and incompatibility must be considered. This scenario might confuse industry players and hinder policy implementation. Harmonization across laws is essential so that all environmental tax programs can run smoothly in compliance with Law Number 4 of 1982.[25]

Yongfeng Zhu et al. found that *green tax* and renewable energy use could reduce CE in one country while transferring it to neighboring jurisdictions. Environmental taxes lower CE more effectively as a country's renewable energy mix grows. These findings demonstrate the importance of considering spatial connections between environmental rules, renewable energy supply, and CE and setting and achieving regional carbon neutrality targets.[26] Then, Monirus Islam et al. found that the eighteen mineral-importing nations' renewable energy generation affects Indonesia's mineral export supply. Resource and crude oil prices are minimal, but importer nations' exchange rates and income growth boost Indonesia's resource exports. Income hurts Indonesia's mineral export supply. According to their research, Indonesia should use its mineral policy to make finished mineral goods. This would help achieve the global goal of changing to net-zero energy sources by the mid-20th century.[27] Despite this, no research study has examined the carbon intensity implications of renewable energy and green finance. Green finance, which is environmentally favorable financing, is the primary determinant regarding carbon intensity reduction. Nevertheless, the extant body of literature fails to address the correlation between carbon intensity in economic scenarios, environmentally sustainable finance, and renewable energy, particularly about funding for renewable energy.[28]

Green finance is predicated on using financial mechanisms to facilitate the transfer of funds to initiatives that advocate for environmental protection and energy conservation,

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[24] Buhari Doğan and others, 'How Environmental Taxes and Carbon Emissions Are Related in the G7 Economies?', *Renewable Energy*, 187 (2022), 645–56 https://doi.org/10.1016/j.renene.2022.01.077
[25] Hamza Abed Alkarim Hammad, Irwan Mohd Subri, and Hasanah Abd Khafidz, 'The Impact of Religiosity on the Malaysian Muslim Community's Attitude Towards the Practice of Cupping', *Juris: Jurnal Ilmiah Syariah*, 22.1 (2023), 145–58 https://doi.org/10.31958/juris.v22i1.8461
[26] Zhu, Taylor, and Wang.
[27] Md. Monirul Islam and others, 'Response of Indonesian Mineral Supply to Global Renewable Energy Generation: Analysis Based on Gravity Model Approach', *Geoscience Frontiers*, 2023, 101658 https://doi.org/10.1016/j.gsf.2023.101658
[28] Shuzhi Zhang and Guangxiong Xie, 'Promoting Green Investment for Renewable Energy Sources in China: Case Study from Autoregressive Distributed Lagged in Error Correction Approach', *Renewable Energy*, 214 (2023), 359–68 https://doi.org/10.1016/j.renene.2023.05.131

thereby aiding in the mitigation of ecological degradation and attaining a more ecologically sustainable economic trajectory. With a growing global awareness of environmental sustainability, environmental tax or "green tax" has become a trend and a requirement. *Green tax* is essential in Indonesia due to its industrial and agricultural potential. However, imposing this tax is complex. We found that the current tax system does not entirely support these objectives. This indicates the urgent need to review and reform tax programs to assist environmental protection and its impact on renewable energy funding in Indonesia. Therefore, it is necessary to research the effect of green tax on renewable energy funding in Indonesia.

2. Research Method

This research employs a normative legal approach informed by a literature review. This study uses a library-based approach (desk research) by analyzing online tax resources, journals, books, and articles. A researcher employs qualitative analysis techniques and utilizes a distinctive narrative writing system.[29] The author analyzed a rationalization of carbon tax revenues to achieve sustainable development in environmental aspects of life. The analysis is conducted by implementing the *green tax* revenue allocation theory. The action taken is to allocate tax revenues for environmental expenditures with an immediate focus. Additionally, the author conducted a benchmarking analysis of the government's *carbon tax* and *green tax* allocation towards ecological spending.

3. Results and Discussion

3.1. Evaluation and Improvement of Green Tax Regulations to Support Green Finance on Indonesia's New Renewable Energy Funding

The OECD acknowledged 2010 that environmental issues would financially burden emerging economies and that an innovative model was required to shape a more prosperous global economy. The concepts of "green" and "growth" could no longer be discussed independently, so they shifted their attention to "green growth." The OECD defines green growth as "sustainable development and economic growth that simultaneously pursues clean growth and environmental protection through the prevention of environmental degradation, unsustainable resource use, and biodiversity loss." The OECD continued to advocate for expanding the concept in its 2011 report "Towards Green Growth," characterizing it as "promoting environmental sustainability and development while ensuring the availability of natural resources to provide necessities for human welfare."[30]

"green economics" is gaining worldwide attention, but its meaning remains ambiguous. "Green finance" was defined by the "G20 Sustainable Finance Study Group in 2016" as "funding projects that produce ecologically beneficial effects" within the context of ecologically responsible development. This notion centers around investment

[29] Arifki Budia Warman and others, 'From Communal to Individual: Shifting Authorities of Family Dispute Resolution in Minangkabau Society', *Ijtihad : Jurnal Wacana Hukum Islam Dan Kemanusiaan*, 23.2 (2023), 161–83 https://doi.org/10.18326/ijtihad.v23i2.161-184

[30] Yongzhong Jiang, Arshian Sharif, and others, 'Does Green Growth in E-7 Countries Depend on Economic Policy Uncertainty, Institutional Quality, and Renewable Energy? Evidence from Quantile-Based Regression', *Geoscience Frontiers*, 14.6 (2023), 101652 https://doi.org/10.1016/j.gsf.2023.101652

products, specifically green bonds or green indices.[31] In contrast to the present state of fossil fuels, the body of literature concerning green finance solutions is in its infancy and, as such, is less feasible. As a consequence, renewable technologies incur more significant expense and risk. Due to the absence of conventional funding sources, the interest rate on the loan is elevated. In contrast to eco-friendly investments based on fossil fuels, the rate of return on green financial initiatives is diminished due to the high cost of renewable technologies and access to capital markets. In contrast, most energy funds are allocated to initiatives related to fossil fuels instead of renewable technology. The lack of market participants (such as banks, entrepreneurs, and governments) to channel funds and information regarding green finance is an additional barrier.[32]

The influence of green finance and other relevant factors on environmental protection and economic growth is significant, and considerable research has been conducted on this topic. However, there are still some voids in the literature.[33] To begin with, is there a correlation between the rise in investments in renewable energy sources and the expansion of green financing? Green finance refers to investments in financial instruments associated with environmentally sustainable and renewable enterprises. Property investments, bonds, and funds related to renewable energy and other environmental initiatives constitute green financing. The development of new renewable energy technology initiatives has become increasingly reliant on a robust green financing market in recent years. Further inquiry pertains to whether increased economic activity fosters the adoption of renewable energy sources for electricity generation. Researchers have established a robust correlation between sustainable energy investment and economic development.[34] Due to economic expansion, a structural transition from renewable energy to renewable energy sources has taken place. Investments in renewable energy have increased in tandem with the economy's expansion. Lastly, is there a correlation between corporate investment and the production and results of renewable energy.[35] Green financing and economic expansion stimulate investment in renewable energy. Investments in renewable energy may also be linked to renewable power production according to the following criterion: an increase in the number of renewable energy investments results in a corresponding rise in renewable power production. As economic expansion transitions from non-renewable to renewable energy sources, private sector participation in the energy sector increases.[36]

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[31] Abdul Kadir Jaelani, Reza Octavia Kusumaningtyas, and others, 'Green Legality Certificate on Agrarian Reform: Indonesian Experience', *KnE Social Sciences*, 2024 https://doi.org/10.18502/kss.v8i21.14713

[32] Zhe Wang and others, 'Research on the Impact of Green Finance and Renewable Energy on Energy Efficiency: The Case Study E−7 Economies', *Renewable Energy*, 205 (2023), 166–73 https://doi.org/10.1016/j.renene.2022.12.077

[33] Xie Xiuzhen, Wenxiu Zheng, and Muhammad Umair, 'Testing the Fluctuations of Oil Resource Price Volatility: A Hurdle for Economic Recovery', *Resources Policy*, 79 (2022), 102982 https://doi.org/10.1016/j.resourpol.2022.102982

[34] Qihan Wu, Dong Yan, and Muhammad Umair, 'Assessing the Role of Competitive Intelligence and Practices of Dynamic Capabilities in Business Accommodation of SMEs', *Economic Analysis and Policy*, 77 (2023), 1103–14 https://doi.org/10.1016/j.eap.2022.11.024

[35] Agus Purnomo and others, 'Characteristics of Hate Speech and Freedom of Expression in the Perspective of Maqāṣid Al-Sharī'ah', *Juris: Jurnal Ilmiah Syariah*, 22.1 (2023), 171–83 https://doi.org/10.31958/juris.v22i1.9446

[36] Khamami Zada, 'Sharia and Islamic State in Indonesia Constitutional Democracy: An Aceh Experience', *Ijtihad : Jurnal Wacana Hukum Islam Dan Kemanusiaan*, 23.1 (2023), 1–18 https://doi.org/10.18326/ijtihad.v23i1.1-18

Since 2006, the Indonesian government has intended to enact an environmental tax (Green Tax) to address this issue. Taxes are perceived as a mechanism to heighten public consciousness regarding the state's environmental protection efforts. As a result of the Green Tax's implementation, business actors will contribute to the nation's environmental protection efforts, thereby striking a balance between economic growth and environmental protection. Before 2021, the Indonesian government had only implemented environmental taxes since 2017. However, that will change with the passage of the HPP Bill (Draft Law on Harmonization of Tax Regulations) by the DPR, which will regulate several tax regulations (including the carbon tax). As stipulated in the HPP Bill, the incremental carbon tax rollout is consistent with the green economy roadmap's carbon trading provisions.[37] One element of green tax reform is establishing a carbon tax, which has been adopted by numerous nations to combat climate change and is supported by multiple international organizations.[38] Nevertheless, the establishment of carbon tax standards outlined in Law No. 7 of 2021 regarding Harmonization of Tax Regulations does not yet adhere to the principles of certainty and clarity of norms in the realm of taxation in several regulatory respects, including the following, clarity regarding the allocation of authority to collect carbon tax, clarity regarding the categories and types of activities subject to carbon tax, clarity regarding the subject matter of carbon tax, as ambiguous in Article 13 par. Beyond carbon issues addressed through carbon pricing mechanisms (e.g., carbon trading and tax implementation) and environmental tax mechanisms (e.g., taxes on water usage and exceptions), as well as sustainability incentives like technological innovation initiatives that support the green economy, the parameters for applying green taxes are comprehensive.[39]

Green tax reform, starting with evaluation notes on environmental tax laws and regulations, is needed to restructure central and regional governments and ensure legal certainty for environmental tax standards. Regional and central environmental administrations are proposed in the following section to implement the green tax reform. Starting with provincial taxes, open-list classification is advised. Local governments might implement a broader range of environmental fees to match their development potential. The OECD has imposed environmental taxes on agriculture, transportation, energy, carbon, air, water, biodiversity, and resource waste. Enhancing the jurisdiction to distribute environmental tax funds to prevent pollution, restore damaged ecosystems, improve climate crisis victims' well-being, fund scientific research, and produce eco-friendly products and services in an environmentally sustainable manner.[40] Budget control. Environmental tax earnings are used worldwide for green budgeting. When designing a fiscal policy framework and budget usage strategy, member nations follow the OECD Paris Collaborative on Green Budgeting to minimize greenhouse gas

[37] Dodi Jaya Wardana, Sukardi, and Radian Salman, 'Public Participation in the Law-Making Process in Indonesia', *Jurnal Media Hukum*, 30.1 (2023), 66–77 https://doi.org/10.18196/jmh.v30i1.14813
[38] Ema Mar'Ati Sholecha and others, 'Justice Collaborator's Position and Function on Witness Protection's Rights as a Suspect from the Perspective of Criminal Law in Indonesia', *Volksgeist: Jurnal Ilmu Hukum Dan Konstitusi*, 6.1 (2023), 131–43 https://doi.org/10.24090/volksgeist.v6i1.7246
[39] Djamaludin and others, 'Assessing the Impact of Electronic Court Systems on the Efficiency of Judicial Processes in the Era of Digital Transformation', *Volksgeist: Jurnal Ilmu Hukum Dan Konstitusi*, 6.1 (2023), 1–18 https://doi.org/10.24090/volksgeist.v6i1.8082
[40] Nilam Firmandayu and Khalid Eltayeb Elfaki, 'The Electronic Government Policy-Based Green Constitution Towards Good Governance', *Journal of Sustainable Development and Regulatory Issues*, 1.2 (2023), 108–21 https://doi.org/https://doi.org/10.53955/jsderi.v1i2.11

emissions and enhance environmental sustainability. Give local and federal governments the power to tax facilities and fiscal incentives to encourage taxpayer engagement in green investment, pollution control, and ecological restoration. Many incentives exist. Australian and Canadian oil and gas sectors have introduced decarbonization incentives for commercial projects, carbon capture, utilization, storage (CCUS), and blue hydrogen research and development. Indonesia may take similar steps. China also uses the Investment Tax Credit (ITC) and Taxable Income Deduction (TID) to reduce pollution in industry, agriculture, construction, mining, and services: energy-saving, emission-reducing, waste-water-management, biomass-producing, and commercial-use equipment.[41]

The initial policy recommendation is that a nation should strengthen the consistency and dependability of its environmentally sustainable financial policies. The subsequent measures must be implemented to enhance ecologically sustainable economic policies within an economy. To support the development of green finance, policymakers should initially enforce financial policies and use fiscal spending to direct public resources and credit financing toward green investment opportunities, including loans, bonds, and green financial products. Furthermore, it is imperative that the government enhance green economic frameworks, expedite licensing prerequisites for ecological, low-carbon, and green sectors, and allocate more regulatory space to green initiatives.[42] Furthermore, governments must ease restrictions on issuing and selling environmentally sustainable bonds and instruments while implementing ecologically sustainable financial development strategies in developing nations. Developing countries must rely more on green finance to safeguard the environment.[43]

The fourth way the government must promote the expansion of environmentally responsible finance is to develop policies and regulations that incentivize financial institutions and banks to invest in renewable energy and energy efficiency projects. This may consist of subsidies, tax rebates, and other financial incentives. Green finance requires the development of policy and regulatory frameworks by governments. Guidelines regarding ecological investments, disclosures, and monitoring mechanisms may be encompassed. This will facilitate aligning investments with national climate objectives, promote transparency, and ensure sustainability. To finance sustainable initiatives, the government should encourage issuing environmentally friendly bonds. Facilitating the expansion of green financing can offer investors low-carbon, low-risk investment alternatives.[44] The government should establish green institutions and funds to encourage green financing. In support of green investments, these institutions may offer soft funding, guarantees, and additional financial instruments. Promote international cooperation as the fifth step: To facilitate the mobilization of climate finance, exchange best practices, and increase investment flows, the government must

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[41] Siti Rahma Novikasari, 'Kewenangan Pemerintah Pusat Dan Daerah Dalam Kerangka Green Tax Reform', *Jurnal Hukum Ius Quia Iustum*, 30.3 (2023), 497–514 https://doi.org/10.20885/iustum.vol30.iss3.art2

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[43] Ahmad Dirwan, Mohammad Jamin, and Jadmiko Anom Husodo, 'Indigenous Community Governance Policy Perspectives on Forest Area Protection', *Journal of Sustainable Development and Regulatory Issues*, 1.2 (2023), 122–32 https://doi.org/https://doi.org/10.53955/jsderi.v1i2.12

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promote international cooperation in green finance. Regional collaboration, global climate financing, and additional international mechanisms may be utilized.[45]

The necessity to increase assistance in channeling funds to renewable energy initiatives is the second policy conclusion. Primarily because the cost per unit of renewable energy is higher than that of fossil fuels, its production is currently inadequate. Long-run cointegration suggests that implementing renewable energy sources, including wind, solar, and nuclear power, could yield favorable results regarding carbon pollution reduction.[46] Investments in non-fossil energy initiatives are frequently substantial, with lengthy return periods. To integrate green financing of products and services into expanding renewable energy enterprises, it is imperative to devise a service strategy that is both adaptable and diversified. In conjunction with other endeavors, substantial backing should be extended towards green financing for environmentally sustainable and renewable energy projects via low-interest loans. This would shorten the duration of financing provision and eliminate the need for upfront payment for approval and evaluation. By this, profitable strategies for renewable energy companies should be implemented, including voluntary write-offs of poor debts, financial discount interest, reduced taxes and subsidies, and pre-tax provisions. Lastly, increased funding for research and development endeavors can spur the creation of innovative processes and environmentally friendly technologies that are indispensable for altering economic prospects by reducing the carbon intensity of a nation's economy and making it more sustainable.[47]

Enhancing the legislative and regulatory framework is imperative to augment public financing and solicit climate-resilient investments from the private sector. In addition, to reduce policy barriers, there is a general urgency for more coordinated and integrated regional, cross-border, and multi-country cooperation among Asian nations on climate change-related issues. Notable is the government's requirement to establish proper procedures for channeling climate finance to local actors to assure more significant poverty reduction and climate impact benefits for a larger population. It is recommended that policymakers and practitioners develop environmental regulations and investments by introducing innovative technologies that convert waste into renewable energy or green energy. Finding ways to increase the use of renewable energy sources is crucial. Given the relentless nature of globalization, it is imperative to contemplate the ramifications of export diversification on the utilization of renewable energy sources.[48]

As governments from numerous countries (beginning with those of Asia, Europe, Africa, America, Australia, and so forth) attempt to develop innovations to prevent the earth from sustaining further damage as a result of the escalating environmental degradation caused by human activity, this concern grows with each passing year. An

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[48] Fokky Fuad and others, 'Ownership of Land: Legal Philosophy and Culture Analysis of Land Property Rights', *Jurnal Media Hukum*, 30.2 (2023), 98–116 https://doi.org/10.18196/jmh.v30i2.18264

example of an innovation is adopting an ecological tax, a "Green Tax." Environmental Tax, also known as Green Tax, is a tax whose primary purpose is to preserve the environment and promote the growth of a nation or region. Despite the considerable potential for environmental tax implementation in Indonesia, its execution remains suboptimal. Greater public awareness, more cohesive policies, and private sector support are essential to addressing this issue. The obstacles consist of resistance from specific industrial sectors, the necessity to develop technical capacity, and the determination of the optimal tax rate that encourages behavior change without impeding economic expansion. The subsequent aspect pertains to sectors that have yet to be optimized for implementing a green tax in Indonesia, including electronics, plastic, and the refuse and pollution. Given the present state of affairs, wherein environmental taxes are dispersed across numerous statutes, legislative consolidation and reform are imperative. In light of the assessment, formulate or amend legislation that pertains specifically to green taxes. It is essential that a novel legal framework supports environmental objectives and surmounts preexisting barriers.[49]

To increase the efficacy of green tax implementation in Indonesia, it is necessary to increase public awareness of the effects of climate change, develop more precise emission measurement technology, and strengthen incentives and support for sectors committed to reducing greenhouse gas emissions. Moreover, stricter law enforcement and increased oversight of green tax violators are required to ensure taxpayer compliance.

3.2. The Influence of Green Tax Regulations on New Renewable Energy Funding in Indonesia

Despite the worldwide financial turmoil of the past thirty years, the expansion of the financial sector has remained a substantial and appealing element of various funding sources. Consequently, economic development is highly dependent on financial growth.[50] Since the inception of industrialization, social progress has been significantly influenced by the financial system. The fundamental responsibility of the global finance sector is to optimize the utilization of global savings. The optimal allocation of financial resources has the potential to enhance an individual's level of satisfaction. However, following the financial industry's collapse, individuals have allocated funds towards real estate development and initiatives that impact the environment, particularly those that worsen ecological degradation caused by human activities. Until now, the financial sector has disregarded environmental concerns, permitting ecological problems such as depletion of natural capital, biodiversity, climate change, and pollution to develop or worsen significantly.[51] Sustainable development can be generated most efficiently through green funding.[52] Investing in novel ideas and advancements, such as renewable energy sources, is

[49] Martitah Martitah and others, 'Transformation of the Legislative System in Indonesia Based on the Principles of Good Legislation', *Journal of Indonesian Legal Studies*, 8.2 (2023) https://doi.org/10.15294/jils.v8i2.69262

[50] Francesco Lamperti and others, 'Three Green Financial Policies to Address Climate Risks', *Journal of Financial Stability*, 54 (2021), 100875 https://doi.org/10.1016/j.jfs.2021.100875

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[52] Reza Ronaldo and Tulus Suryanto, 'Green Finance and Sustainability Development Goals in Indonesian Fund Village', *Resources Policy*, 78.May (2022), 102839 https://doi.org/10.1016/j.resourpol.2022.102839

critical for attaining environmental sustainability, which is precisely green finance's objective.

It is feasible to secure environmentally sustainable financing to enhance the energy efficacy of industrial processes and buildings. This may involve the installation of insulation in existing buildings, the enhancement of lighting systems, or the substitution of inefficient machines with those that are more energy-efficient. Such improvements in energy efficiency can decrease the quantity of energy required to conduct economic activities, thereby reducing carbon emissions. Policy initiatives that have their origins in the financial system have the potential to facilitate the shift towards clean capital by directing investments and identifying prospects for inclusive and sustainable development. As an approach to climate mitigation policy, it is customary to levy additional charges on activities that generate emissions to offset the anticipated future expenses associated with climate change. Most dynamic climate-economy models limit their analysis to policies explicitly represented through monetary incentives.

Environmental and economic sustainability can be realized by exploring green technologies and finance, which do not generate significant carbon emissions, and by addressing the Indonesian economy's substantial demands.[53] However, this has resulted in unsustainable environmental conditions due to the extensive use of resources and the unmanageable exploitation of various resources. Specifically, the proliferation of motor vehicle usage and heavy dependence on diverse coal-burning resources hurt the environment. It heightened the likelihood of airborne diseases affecting the inhabitants of rural areas in Indonesia.

Green finance refers to any organized financial endeavor designed to promote environmental sustainability. Green finance incorporates all public and private initiatives undertaken on a national and international scale to protect the environment. Green finance is crucial because it incentivizes the flow of diverse financial instruments and other services pertinent to developing sustainable business models, investments in various projects, and trade, environmental, and social. The literature is witnessing the expansion of this field[54] as its significance in business operations and the environment continues to rise. Environmental performance deteriorates as pollution rises, leading to increased green finance activities and a focus among researchers on promoting green finance. Green finance has an impact not only on environmental sustainability but also on economic sustainability. Furthermore, a correlation exists between green enterprise, technological innovation, and environmental and economic sustainability. The integration of green technology into business operations has the potential to promote both economic and ecological sustainability because the product manufacturing process could be engineered to reduce environmental impact while simultaneously improving economic conditions. Conversely, green finance has been employed to foster the growth of environmentally

[53] Judith Wolfe, 'The Renewal of Perception in Religious Faith and Biblical Narrative', *European Journal for Philosophy of Religion*, 13.4 (2021) https://doi.org/10.24204/ejpr.2021.3744
[54] Chin-Hsien Yu and others, 'Demand for Green Finance: Resolving Financing Constraints on Green Innovation in China', *Energy Policy*, 153 (2021), 112255 https://doi.org/10.1016/j.enpol.2021.112255

sustainable micro-enterprises that contribute to economic sustainability while minimizing carbon emissions and environmental impact.[55]

Green taxes are the most effective and crucial public policy instrument for achieving these objectives. Nevertheless, *green tax* serves a purpose beyond mitigating environmental pollution.[56] Additionally, *green tax* inspires business owners to create novel technologies, stimulating the growth of green innovation. Furthermore, over time, *green tax* catalyzes by compelling businesses to recognize that green transformation is more beneficial than bearing this expense. Theoretically, given the punitive characteristics of *green tax*, conventional energy companies are anticipated to strive for the long-term advancement of green energy, while high-energy-consumption companies are expected to increase their utilization of renewable energy sources.[57] To sum up, environmental taxes affect the quality of the environment in both direct and indirect ways. *Green tax* improve the quality of the environment by punishing polluters directly and encouraging renewable energy indirectly by creating green companies and technologies.

From the point of view of the macroeconomy, some theoretical studies thought that businesses would get a "double dividend" if they put some of the tax load on using resources and polluting. In other words, an environmental tax can help the economy grow and improve people's lives while also protecting the environment by lowering pollution. However, some factors must be met for the double dividend to happen. Two types of welfare will be better if the government changes the labor tax rate with environmental taxation. These are ecological welfare and non-environmental welfare.[58] Companies will be more likely to invest in environmental protection facilities if environmental regulations (ENR) are stricter. This will also help the business sector restructure and grow, leading to better resource use and the use of environmentally friendly technologies. The economy will grow sustainably, and the environment will get better.[59]

By 2030, Indonesia has established a carbon emission reduction objective of 29% through domestic initiatives and 41% through international collaboration, as mandated by Law No. 16 of 2016. This issue is also consistent with the government's pledge to advance the domestic economy by the tenets of sustainable development, as outlined in Law (UU) Number 32 of 2009 regarding Environmental Protection and Management—precisely, development initiative. Additionally, sustainable development integrates economic, social, and environmental factors. A carbon tax is one of the governmental instruments utilized to fulfill obligations and address this issue. A carbon tax is one of the policies that can be

[55] John W. Goodell and Stephane Goutte, 'Co-Movement of COVID-19 and Bitcoin: Evidence from Wavelet Coherence Analysis', *Finance Research Letters*, 38 (2021), 101625 https://doi.org/10.1016/j.frl.2020.101625
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implemented to reduce carbon emissions.[60] To adhere to sustainable development, the approval of allocations must be rationalized. Carbon tax revenues are typically allocated to three categories of expenditures: general budget, revenue recycling, and environmental spending. Carbon tax revenue presents a favorable circumstance to expand the allocation. On the contrary, Article 13, paragraph (12) of the HPP Law stipulates that revenues generated from carbon taxes may be used to combat climate change.

Table 3. Potential and Projections of Carbon Tax Revenue from Fuel for 2021-2030 in Indonesia

Number	Year	Total Carbon Emissions (Million Tons of CO2)	Minimum Carbon Tax Rate (Rp/kg CO2)	Potential Revenue (Rp Million)
1	2021	251,9	30	7.557.000
2	2022	269	30	8.070.000
3	2023	278,5	30	8.355.000
4	2024	290,5	30	8.715.000
5	2025	276,9	30	8.307.000
6	2026	290,7	30	8.721.000
7	2027	302,22	30	9.066.600
8	2028	311,3	30	9.339.000
9	2029	322,1	30	9.663.000
10	2030	334,6	30	10.038.000

Source: Data Indonesia (2022), processed by the author

As mentioned earlier, the potential revenue from carbon taxes is substantial. According to Table 3, considering the anticipated carbon emissions until 2030 and implementing a minimum carbon tax rate of IDR 30 kg/CO2, the potential revenue generated from carbon tax on burned materials could reach IDR 10 trillion by 2030. Nonetheless, whether for environmental expenditures, revenue recycling, or the general budget, how income is distributed needs consideration; recalling the regulations as the publication of the carbon tax derivative is still pending, the government should reassess the distribution of carbon tax revenues, which ought to be entirely devoted to the reduction of carbon emissions in Indonesia. This allocation can expand opportunities for the green transition sector and enhance environmental preservation per sustainable development principles. The prevailing opinion among economists is that carbon pricing is the most effective policy due to its ability to guarantee cost-effectiveness. In contrast, despite their prevalence among policymakers, renewable energy subsidies or regulations are considered second-best alternatives.[61]

The findings indicate that integrating both climate policies yields a marginal short-term reduction in CO2 emissions. The factors above are primarily attributable to the current low tax rate, the inelasticity of energy demand, and indirect subsidies for other emission-intensive sector production that encourage. Therefore, it can be inferred that more stringent climate policies are necessary, including expanded sectoral carbon tax coverage and the

[60] Wardana, Sukardi, and Salman.
[61] Lingli Qi and others, 'Feed-in Tariffs and the Carbon Emission Trading Scheme under China's Peak Emission Target: A Dynamic CGE Analysis for the Development of Renewable Electricity', *Journal of Environmental Management*, 335 (2023), 117535 https://doi.org/10.1016/j.jenvman.2023.117535

prompt elimination of coal-fired thermoelectric facilities.[62] A cap and tax on schemes can generate supplementary funds for the government via the sale of carbon credits generated as a result of mitigating greenhouse gas emissions. This additional revenue can be allocated towards financing initiatives in alternative settings. Carbon tax, classified as a form of green tax, can generate revenue for nations that can be allocated towards financing clean technology investments and promoting sustainable economic development. The fundamental concept of green tax entails the utilization of financial mechanisms to facilitate the transfer of funds to initiatives that advocate for environmental protection and energy conservation, aid in the mitigation of ecological degradation, and foster more sustainable economic development.[63] A more robust financial sector for renewable energy results in more significant economies of scale, which enhances the viability of funding, effectively mitigates the risks associated with technological advancements and ultimately contributes to the advancement of renewable energy.

4. Conclusion

The increasing concerns regarding energy scarcity, climate change, and the viability of environmentally sustainable practices have underscored the importance of renewable energy sources. One of the numerous challenges associated with adopting renewable energy sources is allocating financial resources. The global economy is facing mounting pressure to transition to renewable energy sources due to the ongoing depletion of fossil fuels and the adverse environmental consequences associated with their utilization. While CO2 emission reduction may generate controversy, multiple approaches to addressing ecological challenges by implementing and experimenting with innovative solutions exist. One potential strategy that can be implemented is a green tax. The environmental tax (*Green Tax*) is a measure the Indonesian government plans to implement to address this issue. Despite Indonesia's considerable potential for ecological tax implementation, its execution remains suboptimal. In Indonesia, green taxation is not yet regulated. Environmental difficulties and challenges becoming ever more complex have prompted the enactment of numerous new regulations, including surface water tax, groundwater tax, HPP law, and others. This variety of regulations undoubtedly has repercussions that result in overlapping rules and the need to account for incompatibilities. On the one hand, taxes can generate government revenue by trading carbon credits to reduce greenhouse gas emissions. The additional funds can be utilized to fund initiatives in alternative environments. Green taxes, such as carbon taxes, can help countries invest in the latest technology and achieve sustainable prosperity by providing funding for renewable energy. However, we observe that the current tax system is still not optimal. Therefore, seeing opportunities for funding renewable energy and environmental protection, Indonesia must review and revise *green tax* policies to maximize implementation.

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